



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,438	10/22/2003	Kazuyoshi Sakai	9319S-000565	8107
27572	7590	02/23/2005		
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				
			EXAMINER SCHECHTER, ANDREW M	
			ART UNIT 2871	PAPER NUMBER

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding..

# Office Action Summary

Application No.

10/691,438

Applicant(s)

SAKAI, KAZUYOSHI

Examiner

Andrew Schechter

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/22/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Figure 6B should be designated by a legend such as --Related Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Electro-optic device having multi-layer conductive layer, method of manufacturing the same, and electronic apparatus".

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 4, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by *Fukuyoshi et al.*, U.S. Patent No. 6,249,082.

*Fukuyoshi* discloses [see Figs. 2 and 5, for instance] an electro-optic device comprising an electro-optic material [509] disposed between a pair of substrates [501, 511]; means for applying an electric field to the electro-optic material [electrodes]; an underlying conductive layer [22] including a conductive metal oxide [col. 11, lines 33-36, col. 20, lines 31-34, col. 21, lines 23-24, col. 12, lines 11-15, etc.] laminated on one of the substrates; a reflective conductive layer [3] formed of one of silver and a silver alloy laminated on the underlying conductive layer; and a transparent conductive layer [4] laminated on the reflective conductive layer and the underlying conductive layer; wherein the transparent conductive layer is thinner than the underlying conductive layer [7 nm vs. 20 nm, col. 11, lines 29-33]. Claim 1 is therefore anticipated.

*Fukuyoshi* also discloses the method of manufacturing this electro-optic device, so claim 4 is also anticipated.

The transparent conductive layer has a thickness of 5 nm to 30 nm [as above], so claims 3 and 6 are also anticipated.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2, 5, and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Fukuyoshi et al.*, U.S. Patent No. 6,249,082 as applied above, in view of *Mizuno et al.*, U.S. Patent No. 6,522,378.

Considering the additional limitations of claim 2 over those of claim 1, *Fukuyoshi* also discloses the electro-optic material sealed in a material-sealed region [see Fig. 5] in which the reflecting electrode is formed on one of the substrates, with the reflecting electrode having the recited laminated structure. However, *Fukuyoshi* does not disclose external wiring provided outside the material-sealed region to conductively connect to the reflecting electrode, the external wiring comprising the same material layer as at least one of the underlying conductive layer and the underlying conductive layer and the transparent conductive layer. *Fukuyoshi* is silent on the details of the external wiring, control means, etc.

*Mizuno* discloses [see Fig. 4] an analogous reflective LCD, with a multi-layer reflective electrode [17, 18], and explicit details of the external wiring, control means, and how they connect to the sealed region. *Mizuno* discloses the electro-optic material sealed in a material-sealed region in which the reflecting electrode is formed on one of the substrates, and external wiring provided outside the material-sealed region to conductively connect to the reflecting electrode, the external wiring comprising the same material layer as the reflective electrode. It would have been obvious to one of ordinary skill in the art at the time of the invention to use this structure of *Mizuno* in the device of

*Fukuyoshi*, motivated by the desire to provide electrical connection between the control means and the display electrodes, and thereby produce the desired display device. In the device of *Fukuyoshi*, this means that the external wiring would comprise the same material layer as the underlying conductive layer, etc. Claim 2 is therefore unpatentable.

The structure taught by *Mizuno* also includes control means [22, etc.] for controlling the electro-optic device, so claims 7 and 10 are also unpatentable.

Considering the additional limitations of claim 5 over those of claim 4, *Fukuyoshi* discloses reflective electrode in a first region corresponding to a material-sealed region in which the electro-optic material is sealed; *Mizuno* discloses and teaches, as discussed above, a second region out of the material-sealed region, in which *Fukuyoshi's* transparent conductive layer is formed on the underlying conductive layer [though not directly on]; and *Fukuyoshi* discloses that there is a step of simultaneously patterning the underlying conductive layer and the transparent conductive layer [col. 11, lines 60-65]. Claim 5 is therefore unpatentable.

*Fukuyoshi's* transparent conductive layer has a thickness of 5 nm to 30 nm [as above], so claims 8 and 9 are also unpatentable.

### **Conclusion**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2871

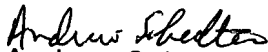
U.S. Patent No. 5,280,373 to *Ozawa et al.* discloses ITO/Ag/ITO electrodes, but is silent on the relative thickness of the two ITO layers.

U.S. Patent No. 5,667,853 to *Fukuyoshi* discloses oxide/Ag/oxide electrodes, but does not disclose any example in which the top oxide layer is thinner than the bottom oxide layer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Andrew Schechter  
Patent Examiner  
Technology Center 2800  
16 February 2005